

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:
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Date of mailing 11 August 2005 (11.08 2005)
(day/month/year)

Applicant's or agent's file reference
2414-101

FOR FURTHER ACTION
See paragraph 2 below

International application No
PCT/CA2005/000534

International filing date (day/month/year)
07 April 2005 (07-04-2005)

Priority date (day/month/year)
12 April 2004 (12-04-2004)

International Patent Classification (IPC) or both national classification and IPC
IPC(7): B21D 51/18, B23K 37/04, B23K 11/04

Applicant
VANDEBEKEN, MARK

1. This opinion contains indications relating to the following items :

- | | |
|--|--|
| <input checked="" type="checkbox"/> Box No. I | Basis of the opinion |
| <input type="checkbox"/> Box No. II | Priority |
| <input type="checkbox"/> Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> Box No. VI | Certain documents cited |
| <input checked="" type="checkbox"/> Box No. VII | Certain defects in the international application |
| <input checked="" type="checkbox"/> Box No. VIII | Certain observations on the international application |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later

For further options, see Form PCT/ISA/220

3. For further details, see notes to Form PCT/ISA/220

Name and mailing address of the ISA/CA
Canadian Intellectual Property Office
Place du Portage I, C114 - 1st Floor, Box PCT
50 Victoria Street
Gatineau, Quebec K1A 0C9
Facsimile No : 001(819)953-2476

Date of completion of this opinion

10 July 2005 (10-07-2005)

Authorized officer

Craig MacMillan (819) 934-3422

Box No. I Basis of this opinion

- 1 With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of :
 - a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing
 - b. format of material

☐ on paper

☐ in electronic form
 - c. time of filing/furnishing

☐ contained in the international application as filed

☐ filed together with the international application in electronic form

☐ furnished subsequently to this Authority for the purposes of search.
- 3 ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statement that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
- 4 Additional comments :

Box No. V Reasoned statement under Rule 43bis 1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|--------------------|-----|
| Novelty (N) | Claims <u>1-26</u> | YES |
| | Claims <u>none</u> | NO |
| Inventive step (IS) | Claims <u>none</u> | YES |
| | Claims <u>1-26</u> | NO |
| Industrial applicability (IA) | Claims <u>1-26</u> | YES |
| | Claims <u>none</u> | NO |

2 Citations and explanations :

Reference is made to the following documents:

- D1: US 3,863,479 A (X. LIPP) - 04 FEBRUARY 1975 (1975-02-04)
D2: US 2,986,193 A (P. HOWELL) - 30 MAY 1961 (1961-05-30)
D3: US 4,074,847 A (M. MCFATTER) - 21 FEBRUARY 1978 (1978-02-21)
D4: US 2,233,233 A (R. WILLIAMS) - 25 February 1941 (1941-02-25)

1. The subject matter of the claims is novel (Art. 33(2) PCT). The prior art, exemplified by D1 and D2 does not explicitly teach the method or apparatus for supporting a tank during construction on a plurality of rollers which engage first and second longitudinal edge bends in an elongated sheet of metal. The claims are characterized by this feature.

2. The subject matter of the claims does not involve an inventive step (Art. 33(3) PCT).

A method of manufacturing a circular metal tank is known from D1 and comprises providing an elongated sheet of metal (83), bending said sheet of metal along upper and lower longitudinal edges (Fig. 8-13), moving said sheet of metal in a helical trajectory such that said upper bend comes into proximity above said lower bend (53), joining said upper and lower bends, continuously forming said tank by rotating the connected strip about the tank's longitudinal axis such that said tank moves upwards as said sheet is connected below.

A method of manufacturing a circular or silo-type structure is also known from D2 (see Fig. 22) and comprises providing an elongated sheet of metal from a coil for continuously forming said structure from the base up by moving said sheet of metal in a helical trajectory about a longitudinal axis of said structure (C.8, L. 60-75).

Claim 1 differs from D1 or D2 in that the connection between the upper and lower bent edges of the strip are made via welding and that the bends cooperate to form a helical roller track on which the tank is supported as it is formed. These features are well known or suggested in the prior art. For instance it is known from D3 to make said connection by welding the upper edge of a portion of the strip metal to the lower edge of a different portion of the strip metal. The person skilled in the art would consider many ways of connecting the edges and would select an appropriate connection based on the application. The use of supporting rollers is well known in the art and can be seen in D1 (C.2, L. 62 to C.3, L. 7) and D3 (45a, 45b). The rolls in D1 and D3 engage an appropriate surface of the sheet metal strip (based on the shape of the strip) as it is formed and rotated into a tank shape.

The features of claims 2, 4 and 6-13 are either known or suggested from either D1 or D2 and thus can not be considered to involve an inventive step (see passages cited in the ISR).

The features of claim 3 and 17, namely the upper bend is an "L" bend and the lower bend is a chair bend is considered an obvious alternative to several embodiments suggested in D1 (Figures 8-13). The shape of the strip is chosen in such a way that a flange is produced upon connection which adds strength and stability to the circular metal tank. The shape of the metal strip desired in claim 3 or 17 is considered equivalent therefore to the shape of the metal strip disclosed in D1.

(continued on page 6)

Box No. VII **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted :

- 1 The applicant is requisitioned to submit replacement pages compliant with PCT Rules 11.2(a) and 11.13(a) Drawings pages containing figures 1a through 14b are unsuitable for reproduction due to the use of unnecessarily light lines
- 2 The drawings do not comply with PCT Rule 11 7(a) The pages containing the drawings shall be numbered.

Box No. VIII **Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made :

- 1 The description does not comply with PCT Article 5. A statement in an application, such as found on page 1, which includes a reference to any provisional application, should be removed. The PCT does not provide for any reference to provisional applications.
- 2 The description does not comply with PCT Article 6. A statement in an application, such as found on page 11, which implies that the extent of protection may be expanded in some vague and not precisely defined way, is not permitted.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

D3 is directed to a method and apparatus for forming large diameter storage tanks from strip metal where one longitudinal edge of the strip metal has been bent to create a flange. In D3 there is provided an assembly (38) for welding the lower edge of the strip metal to the upper flanged edge of the strip metal (C 3, L25-37 and Fig. 5). This assembly essentially constitutes plate alignment and plate welding. In view of D3 the features pertaining to positioning before welding (gross positioning and fine positioning) in claims 5, 14, and 16 are considered known and any modifications which may be suggested in the application as filed would be considered obvious to the person skilled in the art.

The system of claim 14 is not considered to involve an inventive step in view of D1 or D2 in combination with D3. Claim 14 differs from D1 or D2 in that the bends formed by the bender cooperate to form a helical roller track on which the tank is supported as it is formed and a welder is provided for making the connection between the upper and lower bent edges of the strip. The use of supporting rollers is well known in the art and can be seen in D1 (C.2, L 62 to C.3, L 7) and D3 (45a, 45b). The rolls in D1 and D3 engage an appropriate surface of the sheet metal strip (based on the shape of the strip) as it is formed and rotated into a tank shape. It is submitted that it is well within the skills and abilities of the person skilled in the art to have considered supporting the tank as it is formed at the upper and lower bends. The use of a welder in the system is considered obvious in view of D3 as mentioned previously.

The features of claim 15 are suggested in document D4. A system is mentioned for welding together strips of metal sheet end to end to create a continuous strip of indefinite length (C.2, L.36-41). Selecting an appropriate type of weld (for instance butt-welding) is well within the basic knowledge of the person skilled in the art. Although D4 is directed to helically wound pipes, the person skilled in the art would still consider this reference as the process for making helically wound pipes from sheet metal is similar and/or sometimes identical to the processes typically disclosed for making helically wound tanks or containers.

The features of claims 18-26 are either known or suggested from either D1 or D2 and thus can not be considered to involve an inventive step (see passages cited in the ISR).

- 3 The claims are directed to subject matter that is industrially applicable (Art. 33(4) PCT).